

WHAT IS CLAIMED IS:

1. A method to inhibit or prevent heart failure in mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide or a chimera thereof in a delivery vehicle.
2. A method to relax cardiac muscle, comprising: administering to a mammal in need thereof an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding a natriuretic peptide that is lusitropic in a delivery vehicle.
3. A method to increase brain natriuretic peptide levels in a mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide in a delivery vehicle.
4. A method to detect progression of heart failure in a mammal subjected to brain natriuretic gene therapy, comprising: monitoring brain natriuretic peptide levels in a mammal subjected to the administration of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide.
5. A method to inhibit or prevent hypertension in mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding natriuretic peptide or a chimera thereof in a delivery vehicle.
6. A method to inhibit or prevent pulmonary hypertension in mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic

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acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.

7. A method to inhibit or prevent heart failure in mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.
8. A method to relax cardiac muscle in mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.
9. A method to increase natriuretic peptide levels in a mammal, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.
10. A method to detect progression of heart failure in a mammal subjected to natriuretic gene therapy, comprising: monitoring natriuretic peptide levels in a mammal subjected to the administration of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof.
11. A method to inhibit or prevent vasospasm, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide or a chimera thereof in a delivery vehicle.
12. A method to inhibit or prevent vasospasm, comprising: an effective amount of a composition comprising a nucleic acid molecule comprising

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a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.

13. A method to inhibit or prevent atherosclerosis, comprising:
administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide or a chimera thereof in a delivery vehicle.
14. A method to inhibit or prevent atherosclerosis, comprising:
administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.
15. A method to inhibit or prevent vascular restenosis following percutaneous coronary intervention, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide or a chimera thereof in a delivery vehicle.
16. A method to inhibit or prevent vascular restenosis following percutaneous coronary intervention, comprising: administering to the mammal an effective amount of a composition comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof in a delivery vehicle.
17. The method of any one of claims 1 to 3, 5 to 9, and 11 to 16 wherein the delivery vehicle is a recombinant adenovirus.
18. The method of claim 17 wherein the nucleic acid molecule is an adenovirus vector.

19. The method of any one of claims 1 to 16 wherein the composition is administered via intramyocardial injection.
20. The method of any one of claims 1 to 16 wherein the administration is local.
21. The method of any one of claims 1 to 16 wherein the administration is systemic.
22. The method of any one of claims 1 to 3, 5 to 9, and 11 to 16 wherein the delivery vehicle is a liposome or aqueous media.
23. The method of claim 22 wherein the nucleic acid molecule is a plasmid.
24. The method of any one of claims 2, 5 to 12, 14, and 16 wherein the nucleic acid molecule encodes chimeric D-type natriuretic peptide.
25. The method of any one of claims 1 to 5, 11, 13 and 15 wherein the nucleic acid molecule encodes human brain natriuretic peptide.
26. The method of any one of claims 1 to 5, 11, 13 and 15 wherein the nucleic acid molecule encodes canine brain natriuretic peptide.
27. The method of any one of claims 1 to 16 wherein the composition is administered to skeletal muscle.
28. The method of any one of claims 1 to 16 wherein the composition is administered to cardiac muscle.
29. The method of any one of claims 1 to 16 wherein the composition is administered via a catheter.

30. The method of any one of claims 1 to 16 wherein the nucleic acid molecule further comprises a promoter.
31. An adenovirus vector comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof operably linked to transcriptional regulatory elements.
32. An adeno-associated virus vector comprising a nucleic acid molecule comprising a nucleic acid segment encoding brain natriuretic peptide operably linked to transcriptional regulatory elements.
33. An adeno-associated virus vector comprising a nucleic acid molecule comprising a nucleic acid segment encoding D-type natriuretic peptide or a chimera thereof operably linked to transcriptional regulatory elements.
34. The vector of any one of claims 31 to 33 wherein the transcriptional regulatory elements include a promoter.
35. The vector of any one of claims 31 to 33 wherein the nucleic acid segment encodes the prepro form of the natriuretic peptide.
36. The vector of claim 32 wherein the nucleic acid segment encodes canine brain natriuretic peptide.
37. The vector of claim 32 wherein the nucleic acid segment encodes human brain natriuretic peptide.
38. The vector of any one of claims 31 to 33 wherein the nucleic acid segment encodes the pro form of the natriuretic peptide.
39. The vector of any one of claims 31 to 33 wherein the nucleic acid segment comprises genomic natriuretic peptide DNA.

40. The vector of any one of claims 31 to 33 wherein the nucleic acid segment comprises natriuretic peptide cDNA.
41. An isolated and purified nucleic acid molecule comprising a nucleic acid segment encoding a chimeric natriuretic peptide comprising at least a portion of D-type natriuretic peptide.
42. A recombinant adenovirus comprising a DNA molecule comprising a DNA segment encoding a brain natriuretic peptide or a chimera thereof.
43. A recombinant adenovirus comprising a DNA molecule comprising a DNA segment encoding a D-type natriuretic peptide or a chimera thereof.
44. A composition comprising the vector of claim 31 to 33 and a delivery vehicle.
45. A composition comprising the nucleic acid molecule of claim 41 and a delivery vehicle.
46. A composition comprising the virus of claim 42 or 43 and a delivery vehicle.